EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Bob Webster on 12/30/2009.

2. The application has been amended as follows:

Claims 1, 2, 8, and 9 have been canceled.

3. The following is an examiner's statement of reasons for allowance:

Claims 3-7 are allowed since prior art of record does not teach or fairly suggest alone or in combination a method for changing a frequency in a radio optical fusion communication system including a base station and a remote antenna station, the base station being adapted to generate a modulated radio signal, to electro-optically convert the generated signal into an optical signal while the modulation mode is kept, and to transmit the converted signal to the remote antenna station over an optical fiber path, the remote antenna station being adapted to opto-electricallg convert the received optical signal to extract the modulated radio signal and transmitting the signal through an antenna by radio, the base station including a first light source and a second light source for generating optical signals of different frequencies, an intermediate-frequency signal generating means for generating a modulating signal at an intermediate frequency band, a modulator for modulating the optical signal from the first light source into an unsuppressed-carrier single-sideband (SSB) or double-sideband (DSB) modulated optical signal using the intermediate- frequency signal, and an optical mixer for mixing the modulated optical signal with the optical signal from the second light source to obtain an optical transmission signal, the method comprising:

controlling the frequency of at least one of the optical signals from the first and second light sources so that the difference in frequency between the optical signals is a desired frequency of the modulated radio signal, and the frequency channel of the modulated radio signal extracted by the remote antenna station is switched,

shifting the frequency of the optical signal from at least one of the first and second light sources through an optical frequency shifter provided downstream of the light source,

wherein the optical frequency shifter has optical waveguides including a main Mach-Zehnder integrated with two sub Mach-Zehnders, and

driving the optical frequency shifter in accordance with a predetermined frequency oscillation signal for determination of the amount of frequency shift, and the frequency is shifted as much as the frequency of the oscillation signal by changing a voltage applied to the optical frequency shifter such that the optical waveguides have predetermined phase differences therebetween, in additional to other limitations cited in the claims.

Claims 10-14 are allowed since prior art of record does not teach or fairly suggest alone or in combination a base station in a radio optical fusion communication system that includes the base station and a remote antenna station, the base station being adapted to generate a modulated radio signal, to electro-optically convert the generated signal into an optical signal while the modulation mode is kept, and to transmit the converted signal to the remote antenna station over an optical fiber path, the remote antenna station being adapted to opto-electrically convert the received optical signal to extract the modulated radio signal and to transmit the signal through an antenna by radio, the base station comprising:

a first light source and a second light source for generating optical signals of different frequencies;

an intermediate-frequency signal generating means for generating a modulating signal at an intermediate frequency band;

a modulator for modulating the optical signal from the first light source into an unsuppressed-carrier single-sideband (SSB) or double-sideband (DSB) modulated optical signal using the intermediate-frequency signal;

an optical mixer for mixing the modulated optical signal with the optical signal from the second light source to obtain an optical transmission signal;

control means for controlling the frequency of at least one of the optical signals from the first and second light sources so that the difference in frequency between the optical signals is a desired frequency of the modulated radio signal and the frequency channel of the modulated radio signal extracted by the remote antenna station is switched, and

an optical frequency shifter, provided downstream of at least one of the first and second light sources, for shifting the frequency of the optical signal from the light source,

wherein the optical frequency shifter has optical waveguides including a main Mach- Zehnder integrated with two sub Mach-Zehnders, each sub Mach-Zehnder includes an electrode which is supplied predetermined oscillation signal and voltage for determination of the amount of frequency shift, the main Mach-Zehnder includes an electrode which is supplied predetermined voltage,

wherein the optical frequency shifter is adapted to be driven in accordance with a predetermined frequency oscillation signal for determination of the amount of frequency shift, and

wherein the frequency is adapted to be shifted as much as the frequency of the oscillation signal by changing a voltage applied to the optical frequency shifter such that the optical waveguides have predetermined phase differences therebetween, in additional to other limitations cited in the claims.

4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to QUAN-ZHEN WANG whose telephone number is (571)272-3114. The examiner can normally be reached on 9:00 AM - 5:00 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

1/4/2010
/Quan-Zhen Wang/
Primary Examiner, Art Unit 2613